AN APPARATUS AND METHOD FOR THE FIELD SEPARATION OF TABANID LARVAE (DIPTERA: TABANIDAE) FROM MOSS

ANTHONY W. THOMAS
Department of Entomology
University of Alberta
Edmonton 7, Alberta

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*A portable apparatus and its use for the separation of tabanid larvae from moss in the field is described. Thirty-seven hours work yielded 463 larvae in 16 species (*Hybomitra *10,* Chrysops *3,* Atylotus *2,* Haematopota *1). Compared with a Berlese funnel drying unit, this apparatus was 80% efficient.*

*Ce texte donne la description et l'utilisation d'un appareil facilement transportable, construit pour séparer, au champ, les larves de tabanidé de la mousse. Trente-sept heures de travail ont permi de séparer de la mousse 463 larves appartenant à 16 espèces (*Hybomitra *10,* Chrysops *3,* Atylotus *2,* Haematopota *1). Si on compare cet appareil à celui de Berlese, soit des entonnoirs séchant, son efficacité est de 80%.*

The major habitat of *Hybomitra* and *Atylotus* larvae in northern North America is moss (Teskey, 1969). The separation of larvae from moss is tedious and has only been accomplished with any efficiency by drying the moss (Teskey, 1962). Miller (1951) transported moss back to the laboratory and hand sorted it on a table. He considered a yield of 10 to 15 larvae per man per day unusually high. Teskey's (1962) apparatus is efficient but is dependent upon a power supply. It also necessitates the transport of moss from the field to the laboratory and is thus of no use on extended collecting trips. The following apparatus was developed for collecting tabanid larvae from moss when transfer back to the laboratory was not practical.

CONSTRUCTION OF THE PORTABLE SEPARATOR

The frame was built of ½ inch O. D. aluminum alloy tubing having a 1/16 inch wall. It consisted of two six feet long side pieces, two two-feet-nine-inch pieces for the width and four four feet long legs. In use, the legs were pushed one foot down into the moss as an aid to frame stability. The frame was held together by four copper corner pieces, each made of a standard plumbers' tee and 90° elbow and three two-inch long copper pipes. This frame supported two nets. The upper one was four mesh/inch, made of string and manufactured as a base for carpets, and received the moss. The lower one was 20 mesh/inch, made of fiberglass and manufactured as window screening, and was to collect larvae.

METHOD OF USE

The separator is easily portable, either dismantled or assembled when it can be carried upside down on one's back. When an area was to be searched for larvae it was far easier to take the apparatus to the area than transport the moss to the separator. Excessive water was

removed by hand squeezing and the moss then placed on the top net. Enough moss was collected to cover this to a depth of ½ inch; about ¾ of a cubic foot of loosely packed moss. Collection of a sample took less than five minutes. The moss was then shredded by hand, the aim being to separate individual moss plants. This shredding process took between 15 and 20 minutes. During shredding the larvae leave the moss and crawl or fall through the mesh and become stranded on the lower net. This lower net was examined about every two minutes and the larvae retrieved. When the moss was thoroughly shredded the upper net was hit from beneath with the hands. This tossed the moss into the air causing any remaining larvae to separate out. The moss was then discarded and another sample was worked. It is important to shred the moss thoroughly and not place too much on the net at a time.

The above method separates pupae as well as larvae but such pupae are almost always crushed. Precautions are necessary if intact pupae are wanted. The sample must be collected with care and without squeezing. The shredding of such saturated moss is difficult.

This apparatus was used in muskegs where the substratum was all moss and in sloughs where there was a layer of moss and dead horsetails (*Equisetum*) on a clay substratum.

RESULTS

During May and June 1970, 273 larvae of 15 species (2 *Atylotus*, 1 *Haematopota*, 9 *Hybomitra*, 3 *Chrysops*) were collected during 25 hr sampling in three localities in Alberta. The smallest return was 27 larvae for five hours work and the maximum yield was 42 larvae for two hours work.

On five other occasions the moss, after being subjected to field sorting, was brought back to the laboratory and placed in extracting units (Teskey, 1962) until dry. In 12 hr of field work 190 larvae of nine species were obtained, 45 others were obtained from the drying units. Assuming the drying units to be 100% efficient at extracting larvae the efficiency of the field separator ranged from 70% to 89% (average, 80%). Eighty-nine small larvae (< 1 cm) were obtained with the drying units. No attempt to identify these beyond the family level was made. No small larvae were seen during field separations.

DISCUSSION

When an absolute quantitative result is required this portable separator is of no use. However, when a power supply is unavailable, or it is not practical to transport moss to the laboratory, it provides an efficient way of sampling moss for tabanid larvae.

REFERENCES

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Announcement – First International Congress of Systematic and Evolutionary Biology

The Society of Systematic Zoology and the International Association for Plant Taxonomy have joined forces to develop this first opportunity for botanical/zoological interaction at the international level. The University of Colorado (Boulder, Colorado) has extended a gracious invitation to meet on that campus August 4-11, 1973. The diversity of ecological situations in the surrounding countryside makes this one of the most attractive sites in North America, both aesthetically and scientifically. The presence of experienced, enthusiastic biologists on that campus also provides an indispensable ingredient for the success of this Congress.

To begin the planning phase, two committees have been appointed by the sponsoring organizations, a Steering Committee and an International Advisory Committee. The following have been asked to serve on these bodies:

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(*Also member of Steering Committee.)

The Steering Committee will be the principal organizing group. The International Committee will provide valuable advice and guidance in the development of the Congress and it is recognized by the International Union of Biological Sciences as the special working group responsible for this event.

Program plans at this point encompass interdisciplinary symposia and contributed paper sessions. The botanists will not convene a nomenclatural section but a zoological one on this subject is anticipated. In the next few months the outline of the program and other activities will begin to take form. All suggestions will be gratefully received, carefully considered, and as many adopted as practical or feasible. Correspondence may be addressed to any member of the Steering Committee but preferably to the Secretary: Dr. James L. Reveal, Department of Botany, University of Maryland, College Park, Maryland 20740.